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| 10/659,299 | 09/11/2003 | Susumu Hashimoto | 242589US2TTCRD | 3566 |
| 22850 | 7590 | 01/12/2006 | EXAMINER | |
| OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | WATKO, JULIE ANNE | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2653 | |

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/659,299 | Applicant(s) HASHIMOTO ET AL. | |
| | Examiner Julie Anne Watko | Art Unit 2653 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 16-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8-10, 12-15, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 6, 7 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>12/11/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of group I, claims 1-15 and 19-20 in the reply filed on December 16, 2005 is acknowledged.

2. Claims 16-18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Election was made **without** traverse in the reply filed on December 16, 2005.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

4. Applicant cannot rely upon the foreign priority papers to overcome any rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Information Disclosure Statement

5. The listing of references in the specification (see pages 2, 6 and 20, for example) is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Specification

6. The disclosure is objected to because of the following informalities: on page 16, line 24, the specification recites "upper electrode layer 9". This is inconsistent with lines 18-19, "9 corresponds to a phase separation layer".

Appropriate correction is required.

7. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Drawings

8. The drawings were received on June 4, 2004. These drawings are not acceptable. Figures 13-16 have been submitted as glossy black and white photographs.

The following is a quotation from 37 C.F.R. § 1.84:

(b) Photographs .—

(1) Black and white . Photographs, including photocopies of photographs, are not ordinarily permitted in utility and design patent applications. The Office will accept photographs in utility and design patent applications, however, if photographs are the only practicable medium for illustrating the claimed invention. For example, photographs or photomicrographs of: electrophoresis gels, blots (e.g., immunological, western, Southern, and northern), autoradiographs, cell cultures (stained and unstained), histological tissue cross sections (stained and unstained), animals, plants, in vivo imaging, thin layer chromatography plates, crystalline structures, and, in a design patent application, ornamental effects, are acceptable. If the subject matter of the application admits of illustration by a drawing, the examiner may require a drawing in place of the photograph. The photographs must be of sufficient quality so that all details in the photographs are reproducible in the printed patent.

...

(e) Type of paper . Drawings submitted to the Office must be made on paper which is flexible, strong, white, smooth, non-shiny, and durable. All sheets must be reasonably free from cracks, creases, and folds. Only one side of the sheet may be used for the drawing. Each sheet must be reasonably free from erasures and

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must be free from alterations, overwritings, and interlineations. Photographs must be developed on paper meeting the sheet-size requirements of paragraph (f) of this section and the margin requirements of paragraph (g) of this section. See paragraph (b) of this section for other requirements for photographs.

Because the subject matter of the application admits of illustration by a drawing, the Examiner requires a drawing in place of the photographs. Furthermore, the dark, glossy photographs are not sufficiently reproducible for the printed patent, because details do not appear in the scanned figures. Furthermore, the paper is shiny.

9. Figure 29 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1, 7, 14-15 and 19-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Hasegawa et al (US PAP No. 20040086751 A1).

The product by process limitations in these claims (e.g., “formed by a phase separation in a solid phase”) are directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessman*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wertheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); *In re Marosi et al*, 218 USPQ 289; and particularly *In re Thorpe*, 227 USPQ 964, all of which make it clear that it is the patentability of the final structure of the product “gleaned” from the process limitations or steps, which must be determined in a “product by process” claim, and not the patentability of the process limitations. Moreover, an old or obvious product produced by a new method is not a patentable product, whether claimed in “product by process” claims or not. Note that the applicant has the burden of proof in such cases, as the above case law makes clear.

Due to similar recitations, similar independent claims are treated together.

As recited in independent claims 1, 19 and 20, Hasegawa et al show a magnetoresistance effect element (see Fig. 13, for example; alternatively, see Fig. 1) comprising: a magnetoresistance effect film including a first ferromagnetic layer (62, for example) whose direction of magnetization pinned substantially in one direction, a second ferromagnetic layer (92 or 53, for example) whose direction of magnetization changes in response to an external magnetic field, and an intermediate layer (61, for example) provided between the first and second ferromagnetic layers; a pair of electrodes (20 and 30) electrically coupled to the magnetoresistance effect film and configured to supply a sense current perpendicularly a film plane of the magnetoresistance effect film; and a phase separation layer (93 or 54, for example) provided between the pair electrodes, the phase separation layer comprising a first phase and a

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second phase from an alloy including a plurality of elements, one (insulating film) of the first and second phases including at least one element selected from the group consisting of oxygen, nitrogen, fluorine and carbon in higher concentration than other (conductive particles) of the first and second phases.

As recited in independent claim 19, Hasegawa et al show a magnetic head ("MR head", see ¶ 0314).

As recited in independent claim 20, Hasegawa et al show a magnetic recording apparatus which reads magnetic information in a magnetic recording medium ("hard disk", see ¶ 0315).

As recited in claim 7, Hasegawa et al show that the other of the first and second phases is dotted (see Fig. 24) in the one of the first and second phases, and is forming a magnetic contact connecting the first and the second ferromagnetic layers ("By using a magnetic material as the conductive material, the second magnetic layer 55 laminated on the current limiting layer 54 can be put into direct contact with the first magnetic layer 53 to permit ferromagnetic coupling between the first and second magnetic layers 53 and 55", see ¶ 0353).

As recited in independent claims 14 and 15, Hasegawa et al show a magnetoresistance effect element comprising: a magnetoresistance effect film including a first ferromagnetic layer 62 whose direction of magnetization is pinned substantially in one direction, a second ferromagnetic layer 92 whose direction of magnetization changes in response to an external magnetic field, and an intermediate layer 61 provided between the first and second ferromagnetic layers; a pair of electrodes (20 and 30) electrically coupled to the magnetoresistance effect film and configured to supply a sense current perpendicularly to a film plane of the magnetoresistance effect film; a magnetic layer 93 provided between the pair of electrodes, the magnetic layer

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comprising a first region (insulating material) and a second region (conductive particle), the first region including at least one element selected from the group consisting of oxygen, nitrogen, fluorine and carbon in higher concentration than the second region.

As recited in independent claim 14, Hasegawa et al show a magnetic coupling interception layer 27 provided between the magnetic layer and the first or second ferromagnetic layer.

As recited in independent claim 15, Hasegawa et al show a layer 27 provided between the magnetic layer and the first or second ferromagnetic layer, the layer having a thickness between 1 nm and 3 nm (see ¶ 0122, “about 25 Å”, which is within the claimed range) and including at least one element selected from the group consisting of copper (“Cu”, see ¶ 0122), gold (“Au”, see ¶ 0122), silver (“Ag”, see ¶ 0122), rhenium, osmium, ruthenium, iridium, palladium, chromium (“Cr”, see ¶ 0122), magnesium, aluminum, rhodium and platinum.

12. Claims 1 and 19-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Fujiwara et al (US PAP No. 2005/0002126 A1).

The product by process limitations in these claims (e.g., “formed by a phase separation in a solid phase”) are directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessman*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wertheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); *In re Marosi et al*, 218 USPQ 289; and particularly *In re Thorpe*, 227 USPQ 964, all of which make it clear that it is the patentability of the final structure of the product “gleaned” from the process limitations or steps, which must be determined in a “product by process” claim, and not the patentability of the process limitations.

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Moreover, an old or obvious product produced by a new method is not a patentable product, whether claimed in “product by process” claims or not. Note that the applicant has the burden of proof in such cases, as the above case law makes clear.

Due to similar recitations, similar independent claims are treated together.

As recited in claims 1 and 19-20, Fujiwara et al show a magnetoresistance effect element (see Fig. 1, for example) comprising: a magnetoresistance effect film including a first ferromagnetic layer 12 whose direction of magnetization pinned substantially in one direction, a second ferromagnetic layer 11 whose direction of magnetization changes in response to an external magnetic field, and an intermediate layer 13 provided between the first and second ferromagnetic layers; a pair of electrodes (15 and 15') electrically coupled to the magnetoresistance effect film and configured to supply a sense current perpendicularly a film plane of the magnetoresistance effect film; and a phase separation layer 14 provided between the pair electrodes, the phase separation layer comprising a first phase and a second phase from an alloy including a plurality of elements, one of the first and second phases including at least one element selected from the elements, group consisting of oxygen (“one of which is easier to oxidize than the other”, see ¶ 0052), nitrogen (“different susceptibility to nitridation”, see ¶ 0052), fluorine and carbon in higher concentration than other of the first and second phases.

As recited in independent claim 19, Fujiwara et al show a magnetic head (“magnetic transducer or “head””, see ¶ 0002).

As recited in independent claim 20, Fujiwara et al show a magnetic recording apparatus which reads magnetic information in a magnetic recording medium (“reading information signals recorded on a magnetic medium”, see ¶ 0002).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

15. Claims 2 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa et al (US PAP No. 20040086751 A1).

Hasegawa et al show a magnetoresistance element as described above.

As recited in claim 2, Hasegawa et al show that the alloy includes at least one element selected from the first group consisting of silver ("Ag", see ¶ 0181), gold ("Au", see ¶ 0181), platinum ("Pt", see ¶ 0181), palladium ("Pd", see ¶ 0181), iridium ("Ir", see ¶ 0181), osmium ("Os", see ¶ 0181) and copper ("Cu", see ¶ 0181), and at least one element selected from the second group consisting of nickel, iron and cobalt ("Co oxide", see ¶ 0181).

Hasegawa et al are silent regarding the specific ranges recited in claim 2.

It is notoriously old and well known in the magnetic head art to routinely modify a magnetic head structure in the course of routine optimization/ experimentation and thereby obtain various optimized concentrations including those set forth in claim 2.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the magnetic head of Hasegawa et al satisfy the relationships set forth in claim 2. The rationale is as follows: one of ordinary skill in the art would have been motivated to have had the magnetic head of Hasegawa et al satisfy the relationships set forth in claim 2 since it is notoriously old and well known in the magnetic head art to routinely modify a magnetic head structure in the course of routine optimization /experimentation and thereby obtain various optimized concentrations including those set forth in claim 2. Moreover, absent a showing of criticality (i.e., unobvious or unexpected results), the relationships set forth in claim 2 are considered to be within the level of ordinary skill in the art.

Additionally, the law is replete with cases in which when the mere difference between the claimed invention and the prior art is some range, variable or other dimensional limitation within the claims, patentability cannot be found. It furthermore has been held in such a situation, the Applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. See In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). See also Merck & Co. Inc. v. Biocraft Laboratories Inc., 874 F.2d 804, 10

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USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989). See also *In re Kulling*, 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990). See also *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997).

Hasegawa et al are silent regarding the dimensions specifically recited in claims 12-13.

It is notoriously old and well known in the magnetic head art to routinely modify a magnetic head structure in the course of routine optimization/ experimentation and thereby obtain various optimized dimensional relationships including those set forth in claims 12-13.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the magnetic head of Hasegawa et al satisfy the relationships set forth in claims 12-13. The rationale is as follows: one of ordinary skill in the art would have been motivated to have had the magnetic head of Hasegawa et al satisfy the relationships set forth in claims 12-13 since it is notoriously old and well known in the magnetic head art to routinely modify a magnetic head structure in the course of routine optimization /experimentation and thereby obtain various optimized dimensional relationships including those set forth in claims 12-13. Moreover, absent a showing of criticality (i.e., unobvious or unexpected results), the relationships set forth in claims 12-13 are considered to be within the level of ordinary skill in the art.

Moreover, the instant disclosure does not set forth evidence ascribing unexpected results due to the claimed dimensions. See *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338 (Fed. Cir. 1984), which held that the dimensional limitations failed to point out a feature which performed and operated any differently from the prior art.

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16. Claims 3-5, 8-10 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiwara et al (US PAP No. 2005/0002126 A1).

Fujiwara et al show a magnetoresistance element as described above.

As recited in claim 3, Fujiwara et al show that the alloy includes aluminum ("Al", see ¶ 0052), at least one element selected from the first group consisting of silver ("Ag", see ¶ 0052), gold ("Au", see ¶ 0052), platinum ("Pt", see ¶ 0052), palladium ("Pd", see ¶ 0052), iridium, osmium and copper ("Cu", see ¶ 0052), and at least one element selected from the second group consisting of magnesium ("Mg", see ¶ 0052), calcium, silicon ("Si", see ¶ 0052), germanium, boron ("B", see ¶ 0052), tantalum ("Ta", see ¶ 0052), tungsten, niobium ("Nb", see ¶ 0052), zirconium ("Zr", see ¶ 0052), titanium ("Ti", see ¶ 0052), chromium ("Cr", see ¶ 0052), zinc, lithium and gallium.

As recited in claim 4, Fujiwara et al show that the alloy includes magnesium, at least one element selected from the first group consisting of silver ("Ag", see ¶ 0052), gold ("Au", see ¶ 0052), platinum ("Pt", see ¶ 0052), palladium ("Pd", see ¶ 0052), iridium, osmium and copper ("Cu", see ¶ 0052), and at least one element selected from the second group consisting aluminum ("Al", see ¶ 0052), calcium, silicon ("Si", see ¶ 0052), germanium, boron ("B", see ¶ 0052), tantalum ("Ta", see ¶ 0052), tungsten, niobium ("Nb", see ¶ 0052), zirconium ("Zr", see ¶ 0052), titanium ("Ti", see ¶ 0052), chromium ("Cr", see ¶ 0052), zinc, lithium and gallium.

As recited in claim 5, Fujiwara et al show that the alloy includes silicon ("Si", see ¶ 0052), at least one element selected from the first group consisting of silver ("Ag", see ¶ 0052), gold ("Au", see ¶ 0052), platinum ("Pt", see ¶ 0052), palladium ("Pd", see ¶ 0052), iridium, osmium and copper ("Cu", see ¶ 0052), and at least one element selected from the second group

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consisting of magnesium (“Mg”, see ¶ 0052), calcium, aluminum (“Al”, see ¶ 0052), germanium, boron (“B”, see ¶ 0052), tantalum (“Ta”, see ¶ 0052), tungsten, niobium (“Nb”, see ¶ 0052), zirconium (“Zr”, see ¶ 0052), titanium (“Ti”, see ¶ 0052), chromium (“Cr”, see ¶ 0052), zinc, lithium and gallium.

As recited in claim 8, Fujiwara et al show that the alloy includes iron (“Fe”, see ¶ 0052), and at least one element selected from the group consisting of molybdenum, magnesium (“Mg”, see ¶ 0052), calcium, titanium (“Ti”, see ¶ 0052), zirconium (“Zr”, see ¶ 0052), niobium (“Nb”, see ¶ 0052), hafnium, tantalum (“Ta”, see ¶ 0052), boron (“B”, see ¶ 0052), aluminum (“Al”, see ¶ 0052) and silicon (“Si”, see ¶ 0052).

As recited in claim 9, Fujiwara et al show that the alloy includes nickel (“Ni”, see ¶ 0052), and at least one element selected from the group consisting of molybdenum, magnesium (“Mg”, see ¶ 0052), tungsten, titanium (“Ti”, see ¶ 0052), zirconium (“Zr”, see ¶ 0052), niobium (“Nb”, see ¶ 0052), hafnium, tantalum (“Ta”, see ¶ 0052), boron (“B”, see ¶ 0052), aluminum (“Al”, see ¶ 0052) and silicon (“Si”, see ¶ 0052).

As recited in claim 10, Fujiwara et al show that the alloy includes cobalt (“Co”, see ¶ 0052), and at least one element selected from the group consisting of molybdenum, magnesium (“Mg”, see ¶ 0052), tungsten, titanium (“Ti”, see ¶ 0052), zirconium (“Zr”, see ¶ 0052), niobium (“Nb”, see ¶ 0052), hafnium, tantalum (“Ta”, see ¶ 0052), boron (“B”, see ¶ 0052), aluminum (“Al”, see ¶ 0052), chromium (“Cr”, see ¶ 0052) and vanadium (“V”, see ¶ 0052).

Fujiwara et al are silent regarding the specific concentration ranges recited in claims 3-5 and 8-10.

It is notoriously old and well known in the magnetic head art to routinely modify a magnetic head structure in the course of routine optimization/ experimentation and thereby obtain various optimized concentrations including those set forth in claims 3-5 and 8-10.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the magnetic head of Fujiwara et al satisfy the relationships set forth in claims 3-5 and 8-10. The rationale is as follows: one of ordinary skill in the art would have been motivated to have had the magnetic head of Fujiwara et al satisfy the relationships set forth in claims 3-5 and 8-10 since it is notoriously old and well known in the magnetic head art to routinely modify a magnetic head structure in the course of routine optimization /experimentation and thereby obtain various optimized concentrations including those set forth in claims 3-5 and 8-10. Moreover, absent a showing of criticality (i.e., unobvious or unexpected results), the relationships set forth in claims 3-5 and 8-10 are considered to be within the level of ordinary skill in the art.

Additionally, the law is replete with cases in which when the mere difference between the claimed invention and the prior art is some range, variable or other dimensional limitation within the claims, patentability cannot be found. It furthermore has been held in such a situation, the Applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. See In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235

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(CCPA 1955). See also *Merck & Co. Inc. v. Biocraft Laboratories Inc.*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989). See also *In re Kulling*, 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990). See also *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997).

Fujiwara et al are silent regarding the specific dimensional ranges recited in claims 12-13.

It is notoriously old and well known in the magnetic head art to routinely modify a magnetic head structure in the course of routine optimization/ experimentation and thereby obtain various optimized dimensional relationships including those set forth in claims 12-13.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the magnetic head of Fujiwara et al satisfy the relationships set forth in claims 12-13. The rationale is as follows: one of ordinary skill in the art would have been motivated to have had the magnetic head of Fujiwara et al satisfy the relationships set forth in claims 12-13 since it is notoriously old and well known in the magnetic head art to routinely modify a magnetic head structure in the course of routine optimization /experimentation and thereby obtain various optimized dimensional relationships including those set forth in claims 12-13. Moreover, absent a showing of criticality (i.e., unobvious or unexpected results), the relationships set forth in claims 12-13 are considered to be within the level of ordinary skill in the art.

Moreover, the instant disclosure does not set forth evidence ascribing unexpected results due to the claimed dimensions. See *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338 (Fed. Cir. 1984), which held that the dimensional limitations failed to point out a feature which performed and operated any differently from the prior art.

Allowable Subject Matter

17. Claims 6-7 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Fujiwara et al '077 (US Pat. No. 6560077 B2) show a CPP spin valve comprising insulating layer 53b with current confining paths 53c (see Fig. 5).

Nagasaka et al (US PAP No. 2003/0123200 A1) show a MR element (see especially Fig. 2) wherein "non-magnetic layer 13 may also serve as a granular structure layer GR" (see ¶ 0055).

19. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julie Anne Watko whose telephone number is (571) 272-7597. The examiner can normally be reached on Monday-Thursday until 4:45PM, and Friday until 6PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William R. Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Julie Anne Watko
Primary Examiner
Art Unit 2653

January 9, 2006
JAW

A handwritten signature in black ink, appearing to read 'Julie Anne Watko', with a large, stylized loop at the end.